

IEEE Internet of Things Journal Special Issue on Theories and Applications of NB-IoT

Recently, demands for low-power wide-area (LPWA) machine-type communications have increased dramatically. It is expected that LPWA connections will reach 2 billion in 2020, exceeding the number of traditional cellular users. Narrowband Internet of Things (NB-IoT), a new radio access technology, has been released by the Third Generation Partnership (3GPP) for such demands. It could be deployed inside Long Term Evolution (LTE) carrier, and thus will not incur extra deployment cost, requesting only 180 kHz bandwidth of LTE physical resource. NB-IoT supports super coverage extension, massive number of connections and long user lifetime with low power/cost and low device complexity. With such prominent features, NB-IoT has become one of the dominating technologies in LPWA area, applicable to a large range of IoT scenarios such as smart meter, smart parking, smart home, smart tracking, e-health, etc.

However, NB-IoT is still in its infancy, needing deep theoretical investigation of modeling and optimizing system performance. Also, emerging applications that can be enabled by NB-IoT and implementation challenges therein need further exploration. The objective of this call is to bring recent progress in theory, and especially applications of NB-IoT that may help put together a clear picture for this new area. The potential interesting topics of this call include, but are not limited to:

- ✓ Channel modeling of uplink and downlink in NB-IoT
- ✓ Throughput modeling of uplink and downlink in NB-IoT
- ✓ Resource management in NB-IoT
- ✓ Throughput optimization in NB-IoT
- ✓ Access control in NB-IoT
- ✓ Latency investigation in NB-IoT
- ✓ Joint optimization of NB-IoT and LTE
- ✓ Hardware design and optimization of NB-IoT
- ✓ System architectures for applications enabled by NB-IoT
- ✓ New application implementations by NB-IoT
- ✓

The submissions must be original with significant contributions, and have not been under review in any other journals or conferences. The submissions will only be counted if they are submitted electronically through IEEE Manuscript Central (<http://mc.manuscriptcentral.com/iot>) and adheres to standard IEEE Internet of Things formatting requirements. When submitting your article, please indicate that you are submitting to the Special Issue on Modeling, Optimization and Applications in Narrowband Internet of Things.

Tentative Schedule

Submissions Deadline: **August 15, 2017**

First Reviews Due: November 1, 2017

Revision Due: December 15, 2017

Second Reviews Due/Notification: February 1, 2018

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